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plane in use for smoothing box wood to be engraved upon; that it cuts very smoothly and evenly, more so than other planes; and that the surface formed by it scarcely requires to be finished by the subsequent application of the scraper.

Reference to the Engraving.

Plate I. fig. 3, is a longitudinal vertical section of the plane; *a a* the body, *b* the wedge, *c* the plane-iron. Fig. 4 shows the bevelled part of the iron *c*, and the end of the wedge *b*, full sized.

No. II.

EXPANDING WEDGE.

The SILVER VULCAN MEDAL was this session presented to Mr. T. GRIFFITHS, of the Royal Institution, for his Expanding Wedge for the use of Sawyers. A model of which has been placed in the Society's repository.

THE wedge is represented in plate II. fig. 5, in which *a* is the handle or centre-piece, and *c c* are two lateral or spring pieces, all made of clean sound ash: they are inserted at one end into the brass or iron cap *b*, and are secured therein by two transverse bolts or pins of thick iron wire. On the handle *a* is an upright, which carries a cross-piece *d*. The instrument is intended chiefly to save the time and trouble of shifting the common wedges, while sawing up balks of fir into deals. Fig. 6 is another modification of Mr. Griffiths's expanding wedge, in which the spring pieces *c c* are of steel, and the other parts of iron.

The mode of using the instrument, whether the wooden or iron one is employed, is the following. When the saw has made a cut of two or three feet, the loose ends of the springs *c c* are to be brought by hand as near to the centre-piece *a* as their elasticity will admit; the end *b* is then to be introduced into the cut, and the wedge is to be thrust in to the end of the springs, the cross-piece *d* resting on the upper surface of the balk. The elasticity of the springs will be continually opening the cut as the saw proceeds, to the length of about twelve feet; and the wedge, when at its utmost expansion, will be prevented by the cross-piece from falling into the pit. It requires to be adjusted only once for every twelve feet of cut.